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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,506	10/01/2003	Yuji Sakai	008312-0306165	4233
909	7590	01/06/2005	EXAMINER	
PILLSBURY WINTHROP, LLP			FIGUEROA, NATALIA	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2651	
DATE MAILED: 01/06/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,506

Applicant(s)

SAKAI ET AL

Examiner

Natalia Figueroa

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/01/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on October 1st, 2004 (10/01/2004) is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sakai (JP 2001-266301).

RE claim 1, Sakai discloses a disk drive comprising a head which reads out a data signal recorded in a disk medium (abstract); and a read channel which includes a signal processing unit having lower cut-off frequency characteristics and filter circuit which carries out removal of including a low-frequency noise of the data signal outputted from the head ([0019-0020]), an extracting unit which extracts a component of shift base line of the data signal processed by the signal processing unit, a compensating unit which removes the component of the shift in the base line from the data signal ([0014-0020]), and a decoding unit which decodes the recording data from the data signal ([0020]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-9, 11-13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Jiang et al (USPN 6,621,649), hereinafter Jiang.

RE claim 2, Sakai is relied upon for the same reasons of rejection as stated above. Sakai fails to explicitly teach that the signal processing unit includes high-pass filters as the filter circuit and includes a variable gain amplifier circuit and a low-pass filter.

However, Jiang discloses such on (col. 9, line 44-col. 10, line 33). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai with the above teachings from Jiang to include a signal processing unit that would control frequency noise and gain as appropriate hence reducing the errors in a reproduced signal.

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RE claim 3, Sakai is relied upon for the same reasons of rejection as stated above. Sakai fails to explicitly teach that the extracting unit has a generator which generates an ideal data signal; a subtracting unit which outputs a difference data signal according difference between the ideal data signal and a data signal processed by the signal processing unit; and a filter unit including a high-frequency cut-off difference data signal, the filter which processes the filter unit generating a signal corresponding to the component of the shift in the base line.

However, Jiang discloses such generator on (or a system bus sending or commanding a write operation col. 1, lines 60-65), a subtracting unit (figs 7 and 8a and col. 9, line 45-col. 10, line 44) and a filter unit col. 9, line 45-col. 10, line 44). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai with the above teachings from Jiang to remove noise as desired, hence reducing the errors in a reproduced signal.

RE claim 4, Sakai is relied upon for the same reasons of rejection as stated above. Claim 4 has limitations similar to those treated in the above rejections of claim 3 and are met by the references as discussed above. Claim 4 however also recites the following limitation “ an adjusting unit including a gain adjusting circuit and a high-frequency cut-off filter” such is disclosed on (2, lines 28-30 Jiang). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai with the above teachings from Jiang to include a signal processing unit that would control frequency noise and gain as appropriate hence reducing the errors in a reproduced signal.

RE claims 5-8 the combination of Sakai and Jiang is relied upon for the same reasons of

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rejection as stated above. Claims 5-8 have limitations similar to those treated in the above rejections of claims 3-4 and are met by the references as discussed above.

RE claim 9, Sakai discloses disk drive using a disk medium in which a groups of data tracks for recording a data plurality of signal is formed by a perpendicular magnetic recording method (abstract and [0002]), comprising a head to read a data signal recorded in a disk medium in read operation ([0005]), a decoding unit to decode the recording data from the sample data ([0020]); an extracting unit which extracts a component of shift in a base line included the data signal according to difference data between the sample data and an ideal sample data ([0014-0020]); and a compensating unit which removes the component of the shift the base line from the data signal to transmit the data signal the signal processing unit ([0014-0020]). Sakai fails to explicitly teach that each group of data tracks is managed in each plurality of zones, comprising a read channel to process the data signal outputted from the head by a PRML signal processing method to reproduce recording data wherein the read channel includes a high-pass filter circuit having lower cut-off frequency characteristics; and a signal processing unit which generates sample data obtained from the data signal outputted from the high-pass filter circuit by a PR type of waveform equalizing processing. However, Jiang discloses such zones in (col. 1, lines 26-28 Jiang), a read channel in (col. 2, lines 50-55 Jiang) and a signal processing unit in (col. 9, line 44-col. 10, line 33 Jiang).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai with the above teachings from Jiang to include a signal processing unit that would control frequency noise and gain as appropriate hence reducing the errors in a reproduced signal.

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RE claims 11-13, the combination of Sakai and Jiang is relied upon for the same reasons of rejection as stated above. Claims 11-13 have limitations similar to those treated in the above rejections of claims 3-4, and are met by the references as discussed above.

RE claim 20, method claim 20 is drawn to the method of using the corresponding apparatus claimed in claim 9. Therefore method claim 20 corresponds to apparatus claim 9 and is rejected for the same reasons of obviousness as used above.

7. Claims 14-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai and Jiang and further in view of Li (USPN 6,501,611).

RE claims 14-16, the combination of Sakai and Jiang is relied upon for the same reasons of rejection as stated above. Claims 14-16 have limitations similar to those treated in the above rejections of claims 6-7, and are met by the references as discussed above. Claims 14-15 however also recites the following limitation “according to a temperature value detected in the read operation.”

However, Li discloses such on (or temperature sensor, col. 4, lines 18-22). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai and Jiang with the above teachings from Li to include a temperature sensor means hence providing control over the operation of the head, therefore avoiding or minimizing errors in the reproducing signal.

RE claim 17, the combination of Sakai and Jiang is relied upon for the same reasons of rejection as stated above. Claim 17 has limitations similar to those treated in the above rejections of claim 4, and is met by the references as discussed above. Claim 17 however also

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recites the following limitation “a retry control unit which carries out retry of the read operation in the case that data decoded by the decoding unit is error data in the read operation.”

However, Li discloses such on (col. 4, lines 26-37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the apparatus as disclosed by Sakai and Jiang with the above teachings from Li to include a retry means hence being able to obtain a reproduced signal with a minimum number of errors.

RE claim 18, the combination of Sakai and Jiang is relied upon for the same reasons of rejection as stated above. Claim 18 has limitations similar to those treated in the above rejections of claims 4 and 17, and is met by the references as discussed above.

RE claim 19, Sakai is relied upon for the same reasons of rejection as stated above. Claim 19 has limitations similar to those treated in the above rejections of claims 4-5 and 17, and is met by the references as discussed above.

RE claim 21, method claim 21 is drawn to the method of using the corresponding apparatus claimed in claims 9 and 17. Therefore method claim 20 corresponds to apparatus claims 9 and 17 and is rejected for the same reasons of obviousness as used above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are cited to further show the state of the art with respect to data reproducing in a disk drive.

- a) Okamura et al. (JP 11-120702): Discloses a data reproducing device.
- b) Takagi (JP 04-286702): Discloses a magnetic reproducing device.

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- c) Ho et al. (*Data Storage and Retrieval...*): Discloses a magnetic storage device using perpendicular media.
- d) Dziallo et al (USPN 6,078,453): Discloses read channel parameters by zones.
- e) Kaida (USPN 4,772,964): Discloses a gain adjusting circuit.
- f) Narita (USPN 6,178,053): Discloses a read channel parameters and operations.
- g) Nagase et al (USPN 5,396,375): Discloses a reproducing apparatus.
- h) Sakai et al (USPN 4,656,533): Discloses a frequency adjusting method.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Figueroa whose telephone number is (703) 305-1260. The examiner can normally be reached on Monday - Thursday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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